TEAC®

SERVICE MANUAL

CX-270/CX-210

Stereo Cassette Deck

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Effective: May, 1979 B90013 5704000600

1 SPECIFICATIONS AND SERVICE DATA

SPECIFICATIONS

Track System 4-track, 2-channel stereo
2 Heads Erase, Record/Playback
Type of Tape Cassete tape, C-60 and C-90 (Philips type)
Tape Speed 4.8 cm/s (1-7/8 ips)
Input (level and impedance)
MIC: Specified input level; −57dB (1.09mV)/10kohms
Min. input level; −67dB (346μV)
LINE IN: Specified input level; −9dB (275mV)/50kohms
Min. input level; −19dB (86.9mV)
DIN*: Min. input level; −35dB (13.8mV)
Outputs (level and load impedance)
OUTPUT: Specified output level; −5dB (436mV)/50kohms
Headphones: Specified output level; −18dB (97.5mV)/8ohms
Equalization
$CO(CrO_2)$: 3180μs + 70μs
NORMAL: 3180μs + 120μs
Head Configuration
1/2-track, 1-channel Erase Head
1/4-track, 2-channel record/playback head
Motor FG servo controlled DC motor
Bias Frequency 100kHz
Operation Position Horizontal
Power Requirements
100/117/220/240V AC, 50/60Hz, 15W, 13W for CX-210 (General Export Model)
117V AC, 60Hz, 15W, 13W for CX-210 (U.S.A./Canada Model)
220V AC, 50Hz, 15W, 13W for CX-210 (Europe Model)
240V AC, 50Hz, 15W, 13W for CX-210 (U.K./Australia Model)
Weight 6.0kg (13.2 lbs.) net
* Pursuant to DIN standards

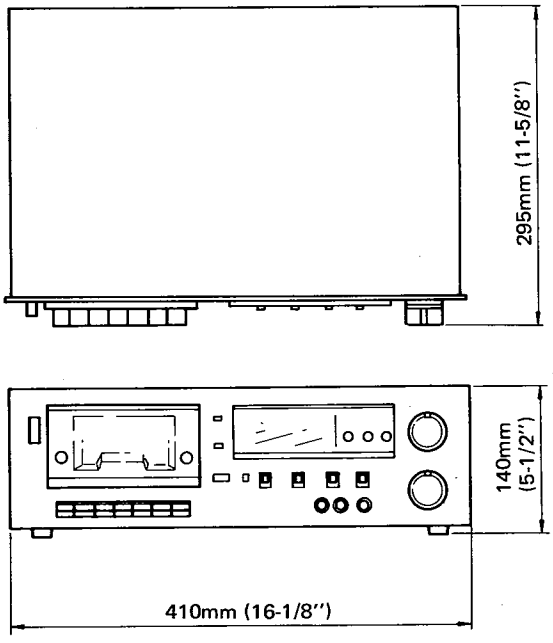


Fig. 1-1 Dimensions

SERVICE DATA

MECHANICAL

Tape Speed Deviation 3,000Hz ± 45Hz
Tape Speed Drift 45Hz
Wow and Flutter
Playback: 0.10% (WRMS)
Record/Playback: 0.25% (RMS)
Pinch Roller Pressure 350g to 450g (12.3oz. to 15.9oz.)
Reel Torque
Take-up: 45 to 60 g-cm (0.6 to 0.8 oz-inch)
Supply: 2 to 6 g-cm (0.03 to 0.08 oz-inch)
Fast Forward: 100 to 150 g-cm (1.4 to 2.1 oz-inch)
Rewind: 100 to 150 g-cm (1.4 to 2.1 oz-inch)
Fast Wind Time
90 seconds for MTT-501 (C-60)

ELECTRICAL

Frequency Response

Playback	Reference 315Hz:		
40Hz:	+2, −4dB	4kHz:	+4, −2dB
63Hz:	+2, −2dB	6.3kHz:	+4, −2dB
2kHz:	+2, −2dB	10kHz:	+4, −5dB
Overall	Reference 400Hz:		
40Hz:	+4, −4dB	6.3kHz:	+2, −2dB
63Hz:	+4, −4dB	8kHz:	+3, −3dB
125Hz:	+4, −2dB	10kHz:	+3, −4dB (NORMAL)
250Hz:	+2, −2dB	12.5kHz:	+3, −4dB ($Co(CrO_2)$)

Signal to Noise Ratio
Playback method:
NORMAL tape; 47dB (min.)
Record/Playback method:
$Co(CrO_2)$ tape; 45dB (min.)
NORMAL tape; 44dB (min.)
S/N is improved by 5dB at 1kHz and 10dB above 5kHz when Dolby NR used.
Erase Efficiency 65dB min.
Channel Separation 30dB min. (at 1kHz)
Crosstalk Between Adjasent Tracks 40dB min. (at 125Hz)
Total Harmonic Distortion 2.2% or less w/$Co(CrO_2)$
2.0% or less w/NORMAL

NOTES:
- Improvements may result in Specifications and Service Data changes.
- Value of "dB" in the Data refers to 0dB (0.775V), except where specified.
- The f-210 is Japan Domestic model of the CX-210.

Noise reduction circuit made under license from Dolby Laboratories. The word "Dolby"and the Double-D symbol are tradmarks of Dolby Laboratories.

2 PARTS LOCATION

(CX-270)

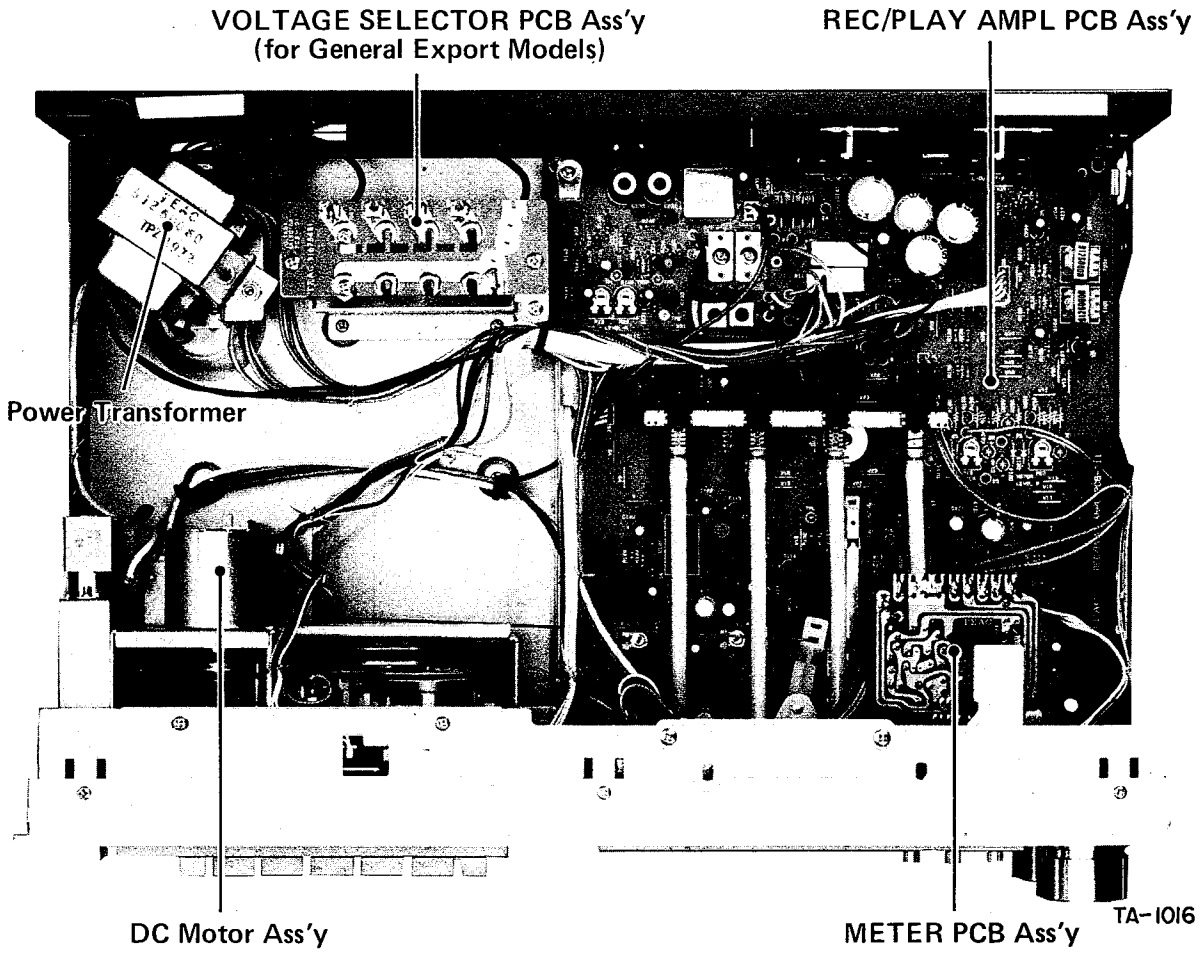
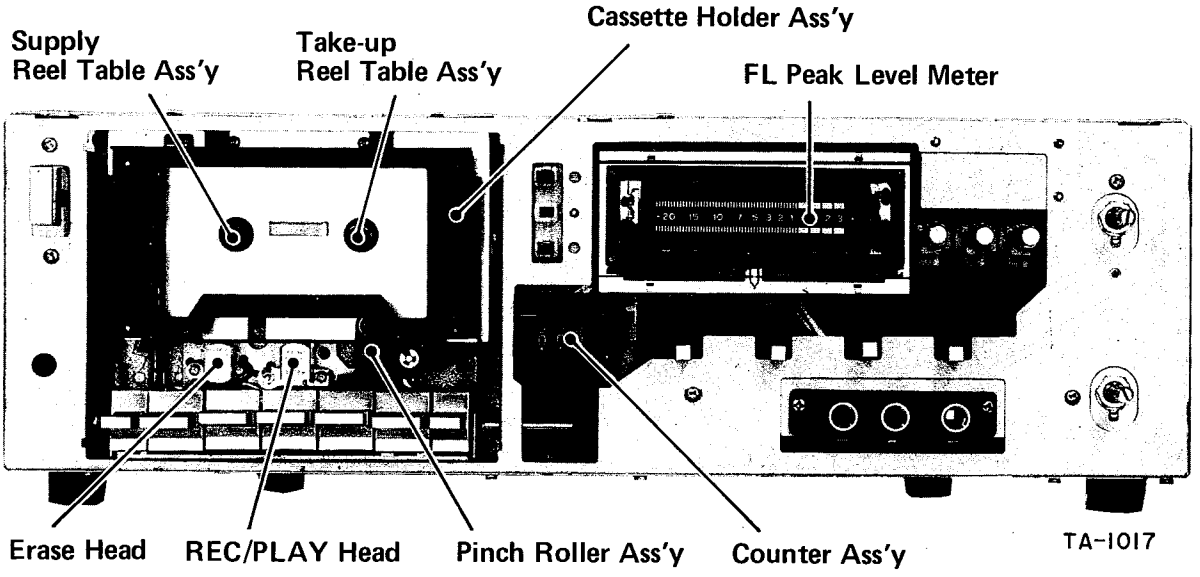


Fig. 2-1



3 CASE AND FRONT PANEL REMOVAL

Disassemble in number-order

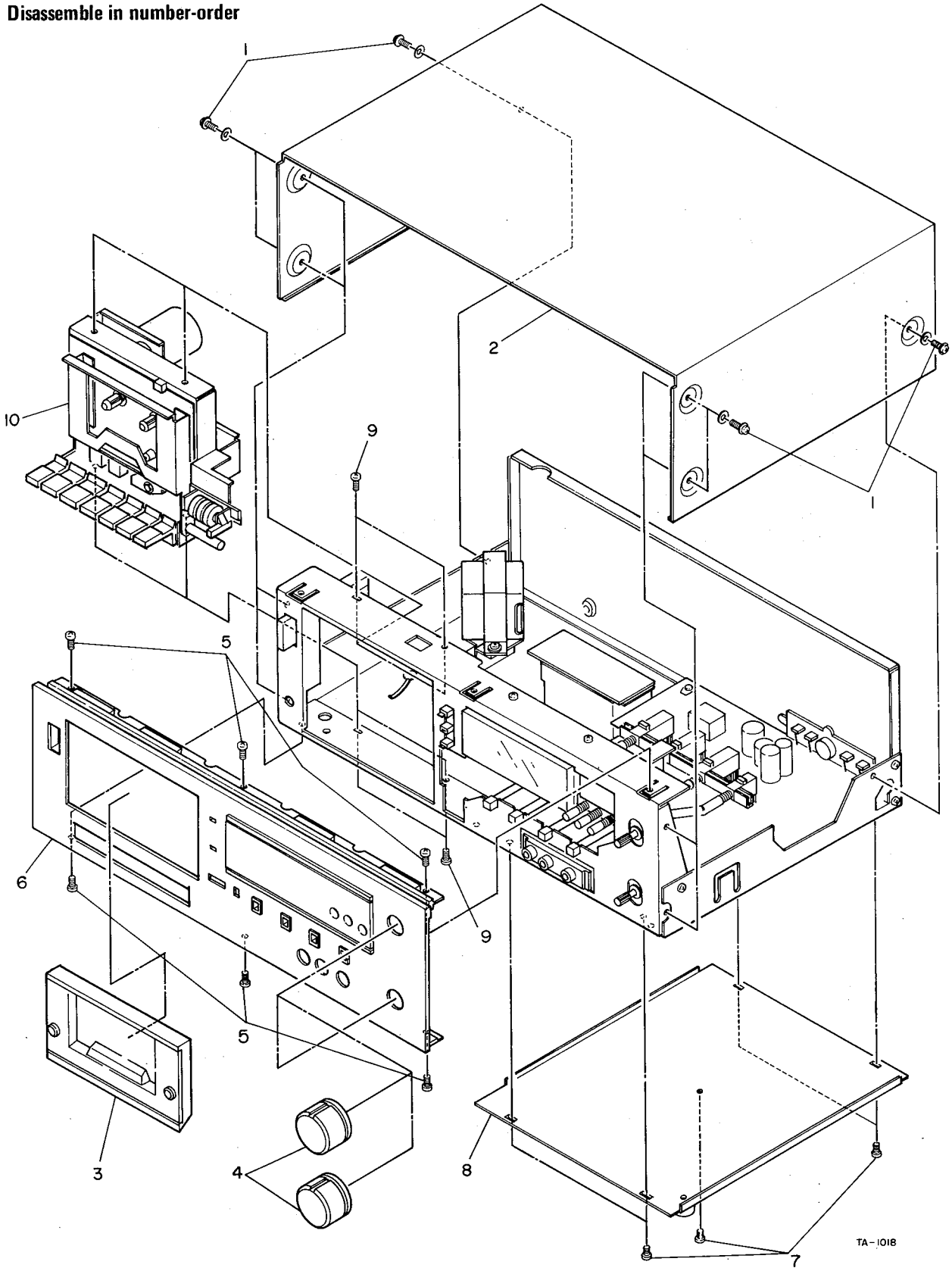


Fig. 3-1

4 MECHANICAL ADJUSTMENTS AND CHECKS

4-1 TEST EQUIPMENT

NOTE: When ordering special tapes indicated by*, allow for the longer delivery time that is required for them.

1. Spring scale: For pinch roller pressure check, 0 to 500g (17.6oz.)
2. Wow/flutter meter:
3. Frequency counter: Digital type, capable of 10Hz to 100 kHz indication
4. Cleaner: TEAC TZ-261 tape recorder cleaner kit or pure alcohol
5. Test tape*: TEAC MTT-111 (for tape speed and wow/flutter test, 3,000Hz is recorded)
6. Cassette torque meter*: For take-up and supply torque checks, 0 to 100 g-cm (0 to 1.4 oz-inch)
   For fast forward and rewind torque checks, 0 to 160 g-cm (0 to 2.2 oz-inch)
7. Compact Cassette Tape Path Checker*: MTT-901; C-60, 30m
   MTT-902; C-90, 45m

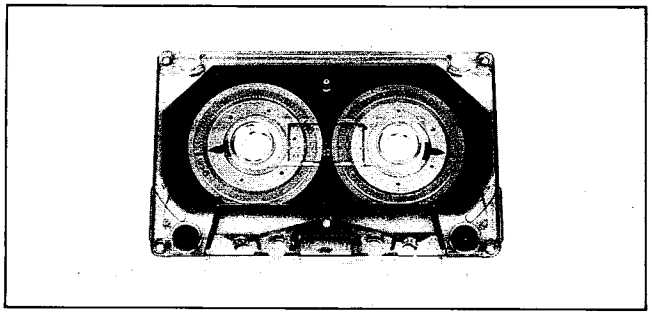


Fig. 4-1 Cassette torque meter

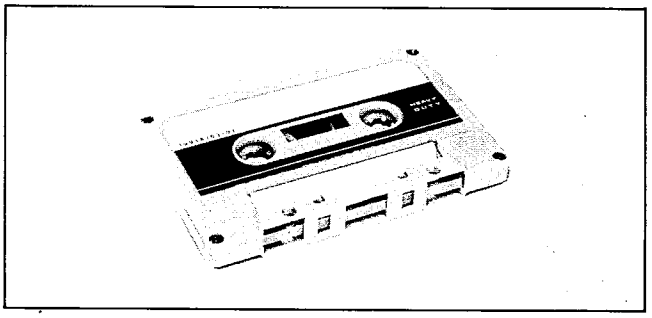


Fig. 4-2 Compact cassette tape path checker

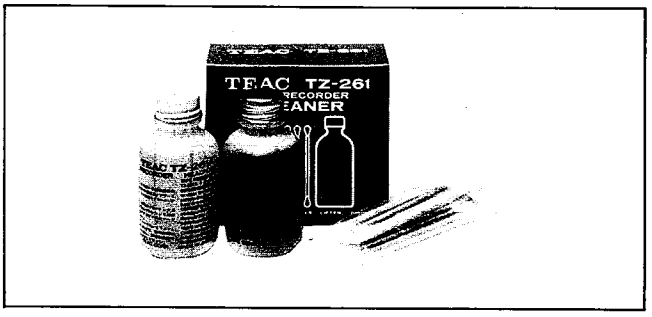


Fig. 4-3 TZ-261 Tape recorder cleaner kit

4-2 CAPSTAN ASSEMBLY THRUST

1. Adjust the thrust adjusting screw so that thrust of the capstan shaft is limited to spec.
   Specification: 0.05mm to 0.10mm

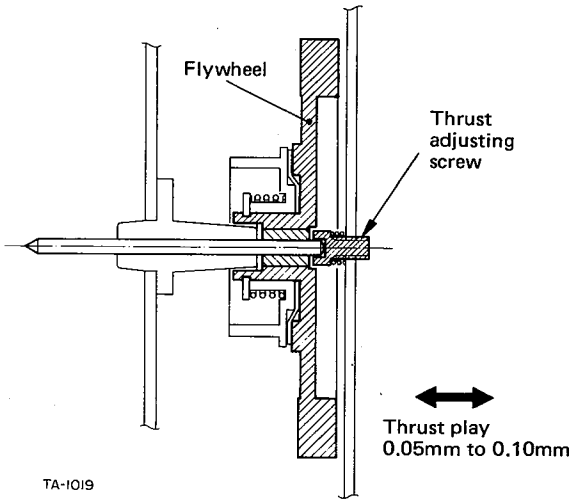


Fig. 4-4

4-3 TAPE SPEED

1. Load and play a TEAC MTT-111 test tape.
2. Using a common slotted screwdriver with a handle completely insulated from the screwdriver blade, adjust the control on the motor for a reading of 2,995Hz to 3,005Hz.
3. Check the followings at the begining and the end of the tape.
   Specifications:
   Tape speed deviation . . . 3,000Hz ± 45Hz
   Tape speed drift 45Hz
4. If the tape speed is out of spec., check the pinch roller pressure and the tape driving function for correctness, and check that the tape path is clean.

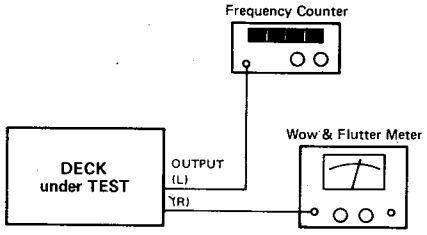
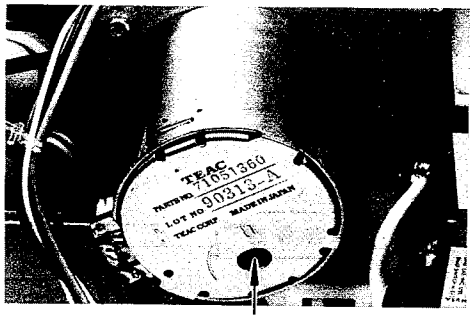


Fig. 4-5 Connection



Internal Adjustment for Tape Speed TA-1020

Fig. 4-6 Tape speed adjustment location

5 ELECTRICAL ADJUSTMENTS AND CHECKS

5-1 GENERAL NOTICE

1. Before performing adjustments and checks, clean and demagnetize the entire tape path.
2. Check that the deck is properly set for the voltage in your locality.
3. In general, adjustments and checks are done in the order of L-ch then R-ch. Double REF. Nos. indicate L-ch/R-ch. (Example: R11/R21)
4. The value of "dB" refers to 0dB (0.775V). If an AC voltmeter calibrated to 0dB (1V) is to be used, appropriate compensation should be made.
5. The AC voltmeter used in the procedures must have an input impedance of 1 M-ohms or more.

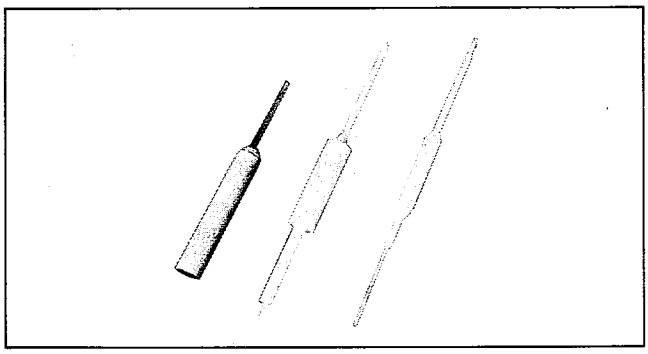


Fig. 5-1 Plastic alignment tools

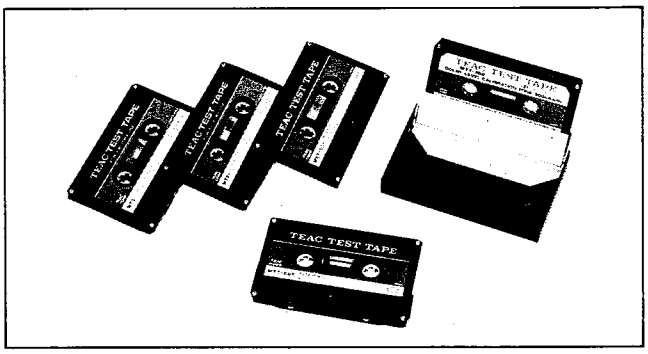


Fig. 5-2 TEAC test tapes

5-2 TEST EQUIPMENT

NOTE: When ordering test tapes, allow for the longer delivery time required for them.

1. TEAC test tapes
   MTT-150: For Duolby level calibration
   MTT-316: For playback frequency response check for EQ – Co (CrO_2)
   MTT-216: For playback response check for EQ – NORMAL
   MTT-506 or similar: For record test with BIAS/EQ, Co (CrO_2)
   MTT-501 or similar: For record test with BIAS/EQ, NORMAL
2. AF oscillator: 10Hz to 100kHz
3. AC voltmeter: 0.1mV to 300V
4. DC voltmeter
5. Attenuator: General purpose
6. Distortion analyzer: Basic frequency 400Hz/1kHz
7. Oscilloscope: General purpose
8. Band-pass filter: 1kHz narrow band-pass type
9. Test load resistor: Non inductive type 8 ohm/1W
10. Plastic alignment tool
11. Head demagnetizer: TEAC E-3 or equivalent
12. Cleaner: TEAC TZ-261 or pure alcohol
13. Bulk tape eraser: TEAC E-2 or equivalent

5-3 PREPARATIONS

1. Make the basic test set-up and the switch setting. Unless showed otherwise in the procedures, 1kHz filter should be bypassed.

Switch	Position
BIAS	Co (CrO_2)
EQ	Co (CrO_2)
DOLBY NR	OUT
INPUT	LINE

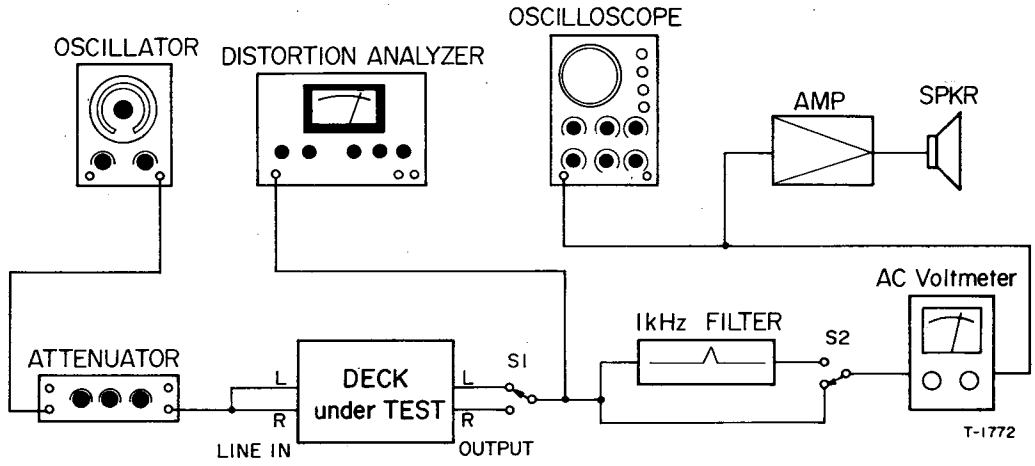


Fig. 5-3 Basic test setup

5-4 PLAYBACK PERFORMANCE

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. REC/PLAY head azimuth	Fig. 5-4	MTT-150 tape	Check	Phase: within 45° on oscilloscope (Fig. 5-6)	
		MTT-316 tape, 10kHz section	Azimuth adj. nut of head (Fig. 5-5)	Max. output on AC voltmeter	
2. Specified output level	Connect AC voltmeter between DOLBY TP L (R) and TP E	MTT-150 tape	R11/R21	580 mV (−2.5 dB)	
	Fig. 5-3		Check	−5 dB ± 2 dB (346 mV to 548 mV)	• Specified level
3. VU meter (Peak level meter)	Fig. 5-3	MTT-150 tape	R13/R23	+3 VU on VU meter . . . . .CX-210 or 0 dB on peak level meter CX-270	• Set PEAK HOLD to CANCEL for CX-270
4. Frequency response	Fig. 5-3	MTT-316 tape, 40Hz to 10kHz section	Jumper W1/W2	Reference 315Hz: 40Hz: +2, −4 dB 63Hz: +2, −2 dB 2kHz: +2, −2 dB 4kHz: +4, −2 dB 6.3kHz: +4, −2 dB 10kHz: +4, −5 dB	• If 10kHz output is low, adjust by cutting jumper W2 and/or W2. (Fig. 5-8).
5. Signal to noise ratio	Fig. 5-3	MTT-501 tape	Check	47 dB (min.) ratio	• Set EQ sw. to NORMAL. • Ratio of spec. −5 dB and noise.
6. Headphone output level	Fig. 5-7	MTT-150 tape	Check	−18 dB ± 2 dB (77.5 mV to 123 mV)	• At PHONES jack.

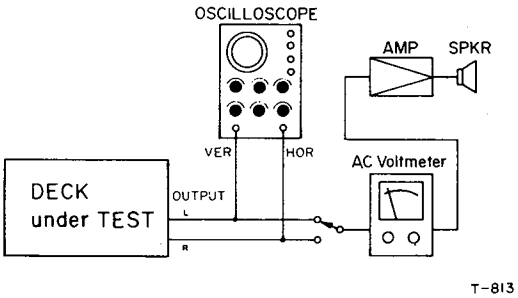


Fig. 5-4 Connection

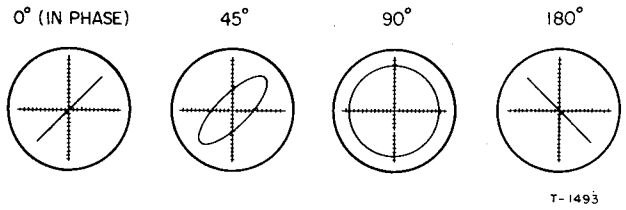


Fig. 5-6 Confirming phase relationship

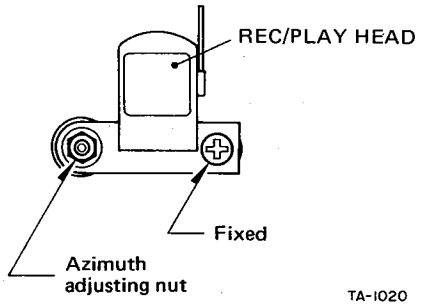


Fig. 5-5 Head azimuth adj. location

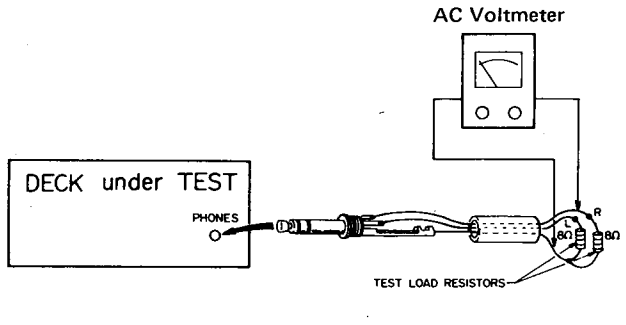


Fig. 5-7 Connection

5-5 MONITOR PERFORMANCE (In the record-pause mode)

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. Min. input level	Fig. 5-3	Test tone, 400Hz/ −19 dB ± 2 dB (69 mV to 109 mV)	RECORD cont. to Max. and Check	−5 dB (436 mV)	• For LINE IN check
	Fig. 5-3, but LINE IN→MIC	Test tone, 400Hz/ −67 dB ± 3 dB (245 μV to 489 μV)			• For MIC check • Set INPUT sw. to MIC (or MIC/DIN) NOTE: To prevent mis-measurements, any connection cords except those for each input check must be removed.
2. Specified RECORD cont. setting	Connect OSC→ATT to LINE IN, and AC voltmeter between DOLBY TP L (R) and TP E	Test tone, 400Hz/ −9 dB (275 mV)	RECORD cont.	580 mV (−2.5 dB)	
	Fig. 5-3		Check	−5 dB ± 1 dB (388 mV to 489 mV)	IMPORTANT: After this, do not move RECORD cont. for all later process.
3. VU meter (Peak level meter)	Fig. 5-3	Test tone, 400Hz/ −9 dB	Check	+3 VU ± 1 VU on VU meter . . . . . .CX-210 or 0 dB ± 1 dB on peak level meter CX-270	• Set PEAK HOLD to CANCEL for CX-270

5-6 RECORDING PERFORMANCE

ITEM	CONNECTION	SIGNAL SOURCE	ADJUST (or CHECK)	OUTPUT	REMARKS
1. Bias trap	Connect AC voltmeter between BIAS TRAP TP L(R) and TP E	No signal	L102/L202	Min. reading	• Set in REC-PAUSE mode.
2. Record bias	Fig. 5-3	Test tone, 400Hz and 6.3kHz in turn/−42 dB	C136/C236	The same level at both frequencies	
3. Record level	Fig. 5-3	Test tone, 400Hz/ −12 dB (195 mV)	R12/R22. . . .	−8 dB (308 mV) . . . . . .Co (CrO_2)	
			Check.	−8 dB ± 1.5 dB (259 mV to 367 mV) . . . . .NORMAL	
4. Distortion	Fig. 5-3	Test tone, 400Hz/ −12 dB (195 mV)	Check	2.2% or less . . . . . .Co (CrO_2) 2.0% or less . . . . . .NORMAL	
5. Frequency response	Fig. 5-3	Test tone required w/spec./−42 dB (6.15 mV)	Check	Reference 400Hz: 40Hz: +4, −4 dB 63Hz: +4, −4 dB 125Hz: +4, −2 dB 250Hz: +2, −2 dB 6.3kHz: +2, −2 dB 8kHz: +3, −3 dB 10kHz: +3, −4 dB . . . . .NORMAL 12.5kHz: +3, −4 dB . . . . .Co (CrO_2)	

6. Signal to noise ratio	Fig. 5-3	Test tone, 1kHz/ −9 dB (275 mV) then No signal recording	Check	45 dB (min.) ratio. . . . . .Co (CrO_2) 44 dB (min.) ratio. . . . . .NORMAL	• Ratio of 1kHz portion and no signal portion
7. Erase efficiency	Fig. 5-3, switch on 1kHz filter	Test tone, 1kHz/ +1 dB (0.869 V) then No signal recording	Check	65 dB (min.) ratio	• Co (CrO_2) only • Record 1kHz. Rewind tape to mid point of recorded portion. Do no signal recording. Get difference between 1kHz portion and its erased portion.
8. Channel separation	Fig. 5-3, connect OSC→ATT to LINE IN (L) only, switch on 1kHz filter	Test tone, 1kHz/ −9 dB (275 mV) for L-ch and No signal for R-ch	Check	30 dB (min.) ratio	• Co (CrO_2) only • Set deck in record mode. Find differences between 1kHz recorded portion (L-ch) and no signal portion (R-ch).
9. Adjacent track cross talk	Fig. 5-3, connect OSC→ATT to LINE IN (R) only, and AC voltmeter to OUTPUT (R) only	Test tone, 125Hz −9 dB (275 mV)	Check	40 dB (min.) ratio	• Co (CrO_2) only • Record 125Hz on R-ch. Note output level of its recorded portion. Invert tape and play R-ch track. Check leakage level against the output ref. of previously recorded portion.
10. Dolby NR effect	Fig. 5-3	Test tone: 1kHz/ −32 dB (19.5 mV), 10kHz/−42 dB (6.15 mV)	Check	Variation from ref. At 1kHz: 3 dB to 8 dB At 10kHz: 8 dB to 12 dB	• Co (CrO_2) only • Record 1kHz w/DOLBY NR sw. to OUT. Play its portion w/DOLBY NR, OUT and IN. Get the output level difference between OUT and IN. • Repeat the above process for 10kHz.

5-7 ADJUSTMENT AND TEST POINT LOCATIONS

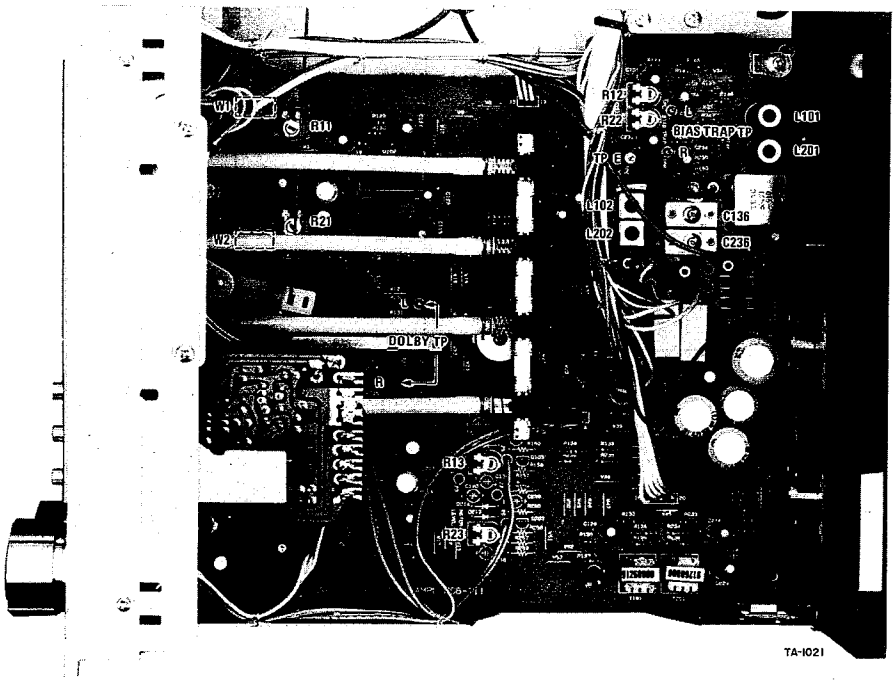
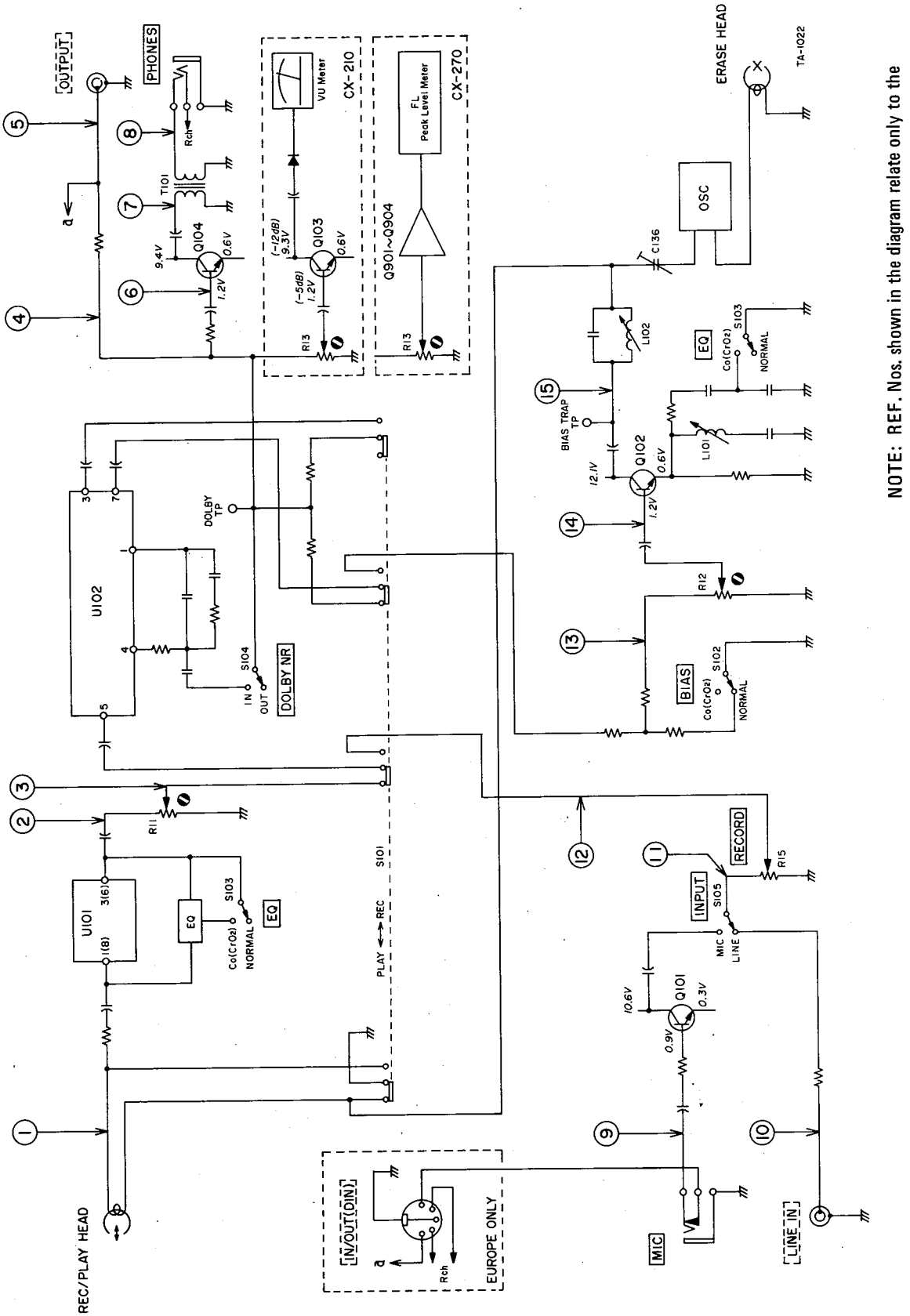


Fig. 5-8

6 BLOCK DIAGRAM



NOTE: REF. Nos. shown in the diagram relate only to the left channel.

Fig. 6-1

7 LEVEL DIAGRAM

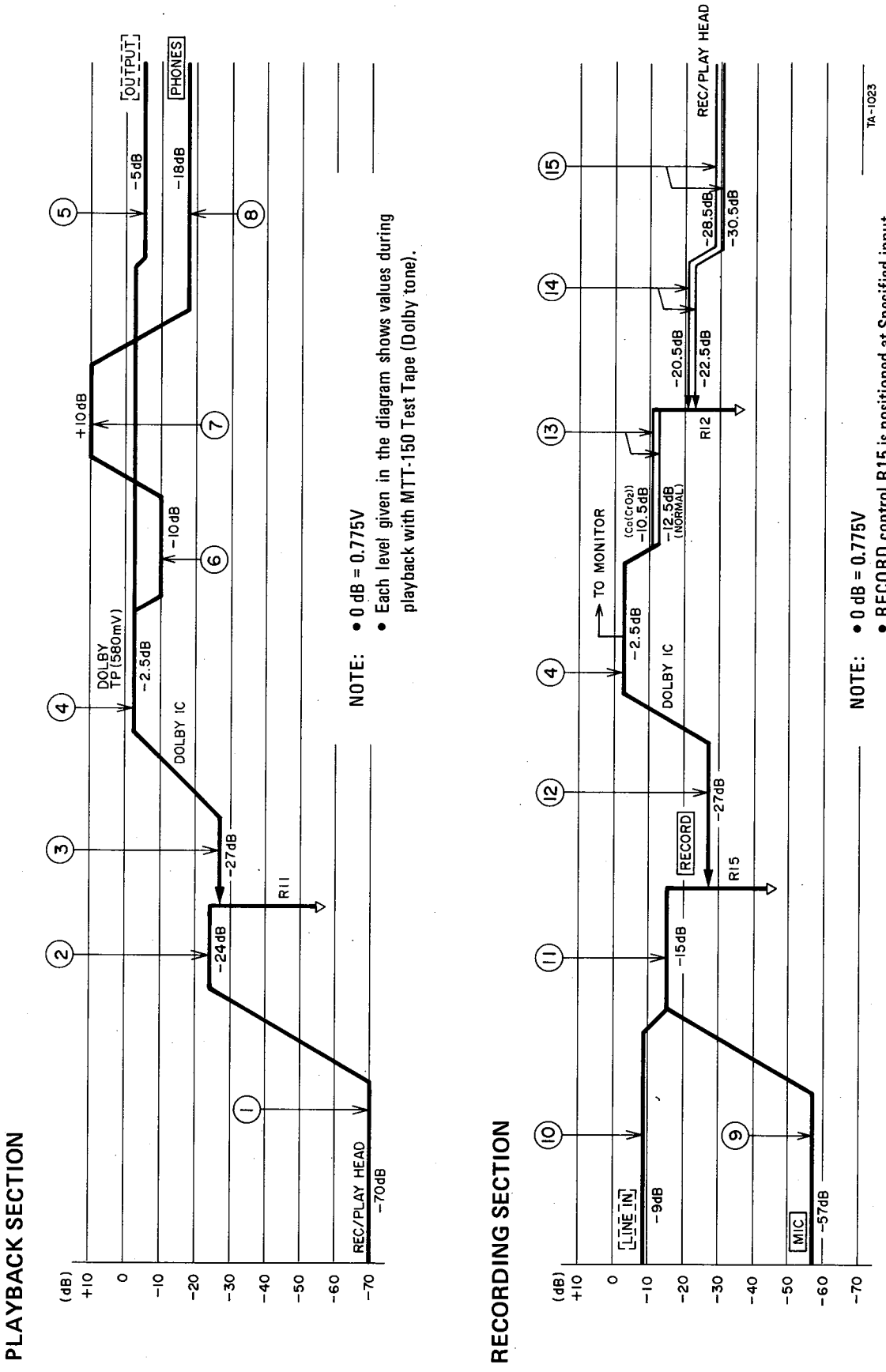


Fig. 7-1

8 LUBRICATION AND VOLTAGE CONVERSION

8-1 LUBRICATION

Lubrication is only required when parts are replaced. For this purpose, use oil and grease specified below.

Oil: TEAC spindle oil (from TEAC TZ-255 oil kit), Mobil D.T.E. Oil Light, or equivalent

Grease: ORE-LUBE G1/3 or equivalent

1. Apply a drop of oil with an oil applicator to a point about 1/3 the way down the shaft (from the free end) of the flywheel, then insert the shaft into the capstan housing.
2. Apply a suitable amount of light grease to the well of the flywheel bearing.

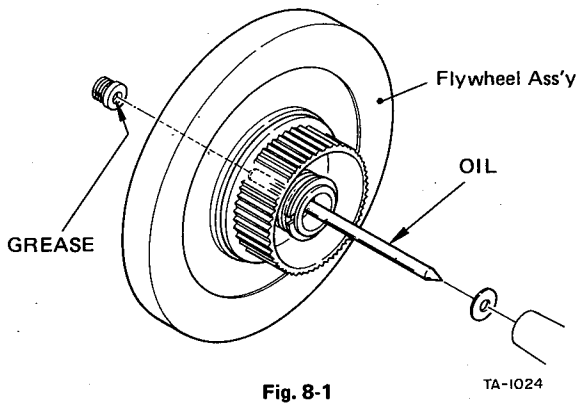


Fig. 8-1

8-2 VOLTAGE SELECTOR SETTING PROCEDURE (FOR GENERAL EXPORT MODELS)

1. Always disconnect the power line cord before making these setting.
2. Remove the top cover of the deck by removing the screws from the sides.
3. Locate the voltage selector. See PARTS LOCATION.
4. Loosen the two screws in the shorting bar and move the bar so that it shorts across the terminals marked with the required voltage (100, 117, 220 or 240).
5. Retighten the screws and replace the top cover.

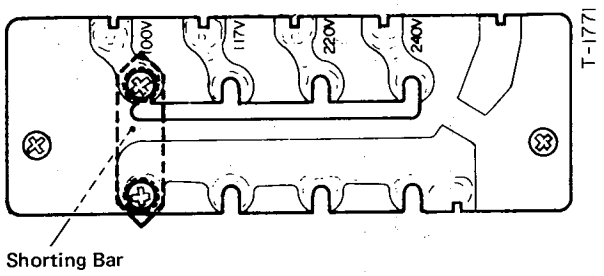
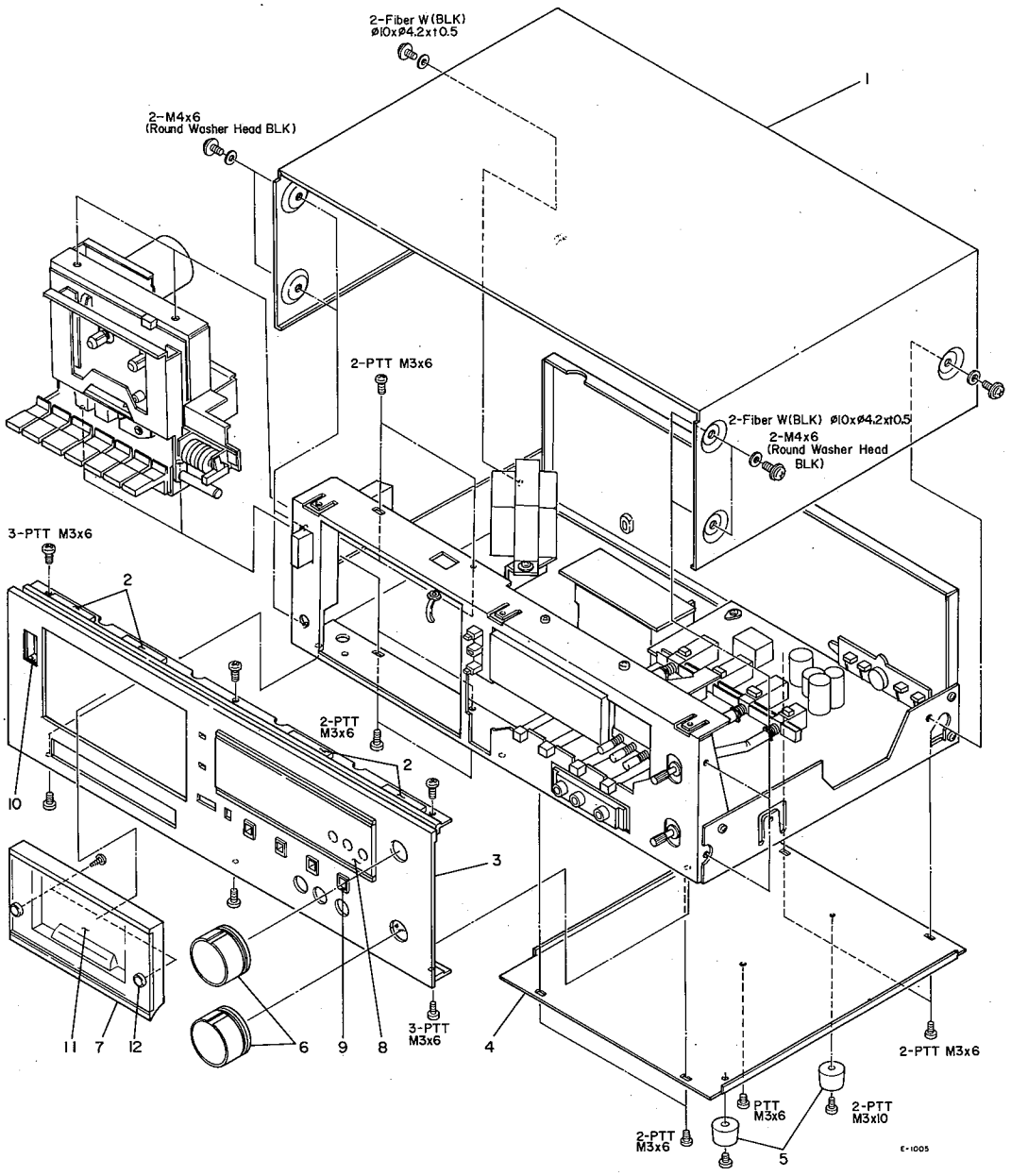


Fig. 8-2

8-3 AC POWER LINE FREQUENCY ADAPTATION

Since the CX-270/CX-210 employ a DC servo motor, 50Hz or 60 Hz operation is permitted without power line frequency adaptation.

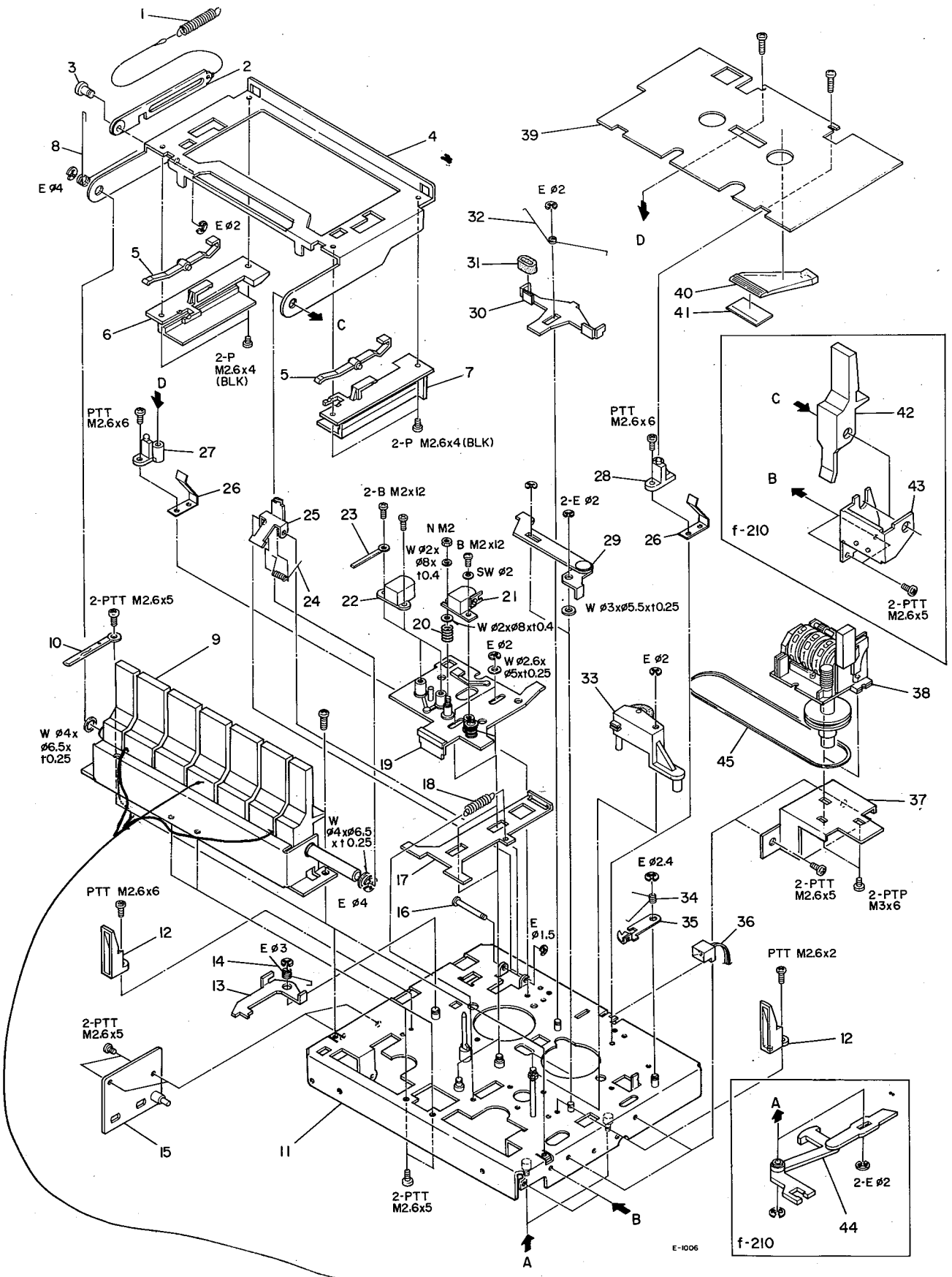
9 EXPLODED VIEWS AND PARTS LIST



Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	*5552438000	Cover, Top	
1 - 2	*5555570000	Cushion, Top Cover; B	
1 - 3	*5552450000	Panel, Front; A	CX-210
	*5552451000	Panel, Front; B	JAPAN(f-210)
	*5552452000	Panel, Front; C	CX-270
1 - 4	*5552436000	Chassis, Ampl.	
1 - 5	*5534432000	Foot	
1 - 6	5555781000	Knob, VR	
1 - 7	5532068000	Cover, Cassette	
1 - 8	*5503216000	Cover Assy, Merer; B	CX-270
	*5503215000	Cover Assy, Meter; A	CX-210, JAPAN(f-210)
1 - 9	*5533228000	Escutcheon, Switch; B	
1 - 10	*5534772000	Escutcheon, Power Switch	
1 - 11	5534777000	Plate, Cassette	
1 - 12	5534776000	Stud, Cassette Plate	

EXPLODED VIEW-2



Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2 - 1	*5524203000	Spring, Damper	
2 - 2	*5534612000	Plate, Lock	
2 - 3	*5545089000	Shaft, Lock Plate	
2 - 4	5553323000	Holder, Cassette	
2 - 5	5534615000	Spring, Cassette Pressure	
2 - 6	5534613000	Guide, Cassette; L	
2 - 7	5534614000	Guide, Cassette; R	
2 - 8	*5524247000	Spring, Holder	
2 - 9	5503214000	Button Assy	
2 - 10	*5581038000	Clamper, Cord; A	
2 - 11	*5502239000	Chassis, Mechanism	
2 - 12	*5534444200	Guide, Cassette	
2 - 13	*5555762000	Arm, Eject Preventing	
2 - 14	*5524242000	Spring, Arm	
2 - 15	*5504776000	Plate Assy, Lock	
2 - 16	*5544656000	Shaft, Record Preventing	
2 - 17	*5555758000	Plate, Brake Actuating	
2 - 18	*5524240000	Spring, Brake Actuating	
2 - 19	5504755000	Plate Assy, Head Base	
2 - 20	*5524120000	Spring, Head	
2 - 21	5569615000	Head, REC/PLAY	
2 - 22	5569601000	Head, Erase	
2 - 23	*5581062000	Clamper, Cord; E	
2 - 24	*5520349000	Spring, Safety Lever	
2 - 25	*5555081100	Lever, Safety; C	
2 - 26	*5555773000	Plate, Cassette Pressure	
2 - 27	*5534765000	Guide, Cassette; L	
2 - 28	*5534766000	Guide, Cassette; R	
2 - 29	5504773000	Arm Assy, Pause	
2 - 30	*5555759000	Plate, Brake	
2 - 31	*5534844000	Shoe, Brake	
2 - 32	*5524241000	Spring, Brake	
2 - 33	5504760000	Pinch Roller Assy	
2 - 34	*5084550200	Spring, Lock	
2 - 35	*5084643200	Plate, Lock	
2 - 36	5142036000	Lamp, w/Holder	
2 - 37	*5555752000	Bracket, Counter	
2 - 38	5504769000	Counter Assy	
2 - 39	*5555770000	Plate, Cassette Holder	
2 - 40	*5534761000	Lens, Cassette	
2 - 41	*5555771000	Plate, Refractive	
2 - 42	5532098000	Button, B	JAPAN(f-210)
2 - 43	*5504778000	Bracket, Button B	JAPAN(f-210)
2 - 44	*5504775000	Arm Assy, TIMER	JAPAN(f-210)
2 - 45	5534769000	Belt, Counter	

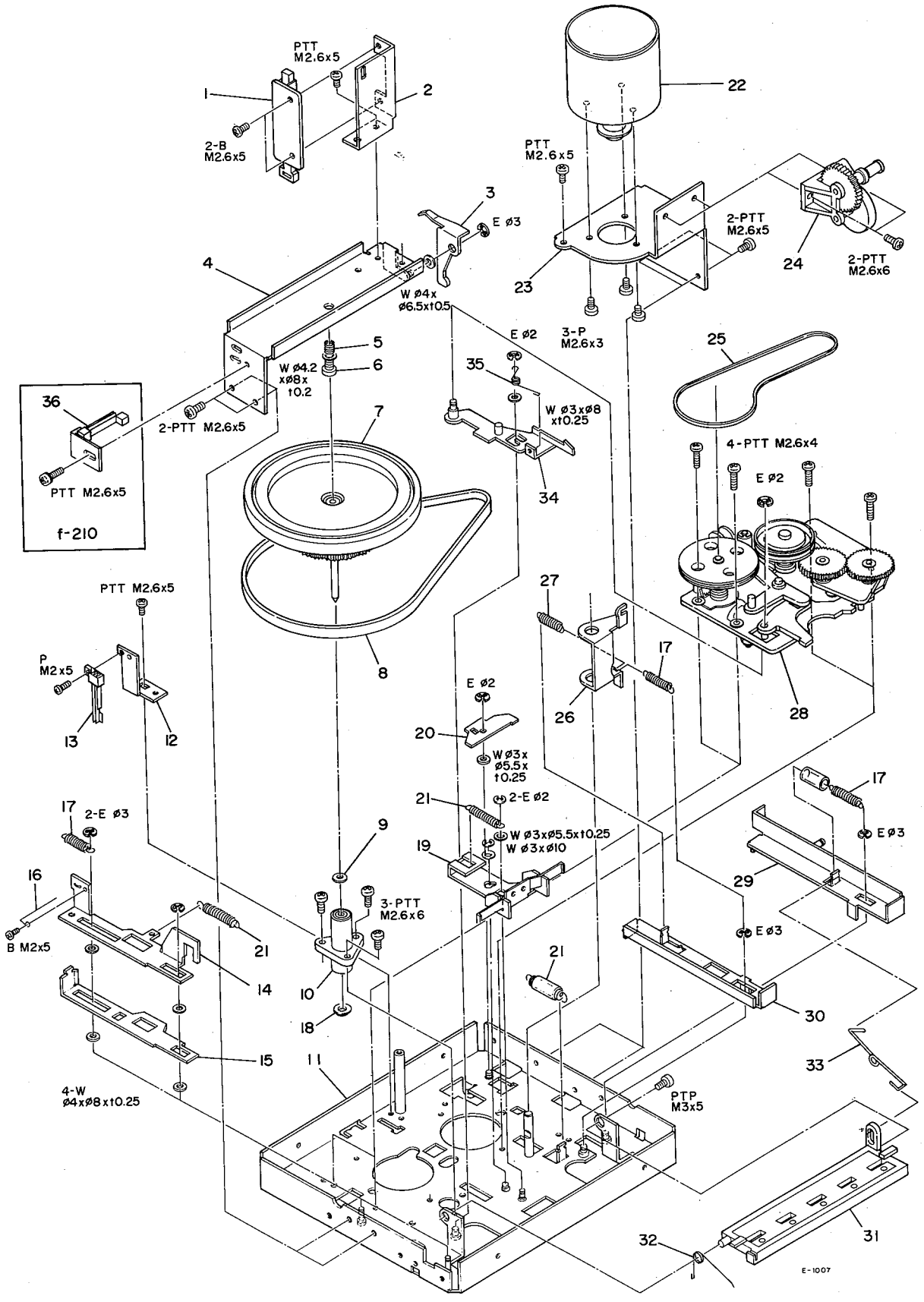
all
Include 7 levers

5532098000 BUTTON COVER ONLY (~~FOR [illegible] BUTTONS~~)

Pause & Eject only (Narrow ones)

~~5041690~~ 00000090 Play levers. ~~[illegible]~~ (wide ones)

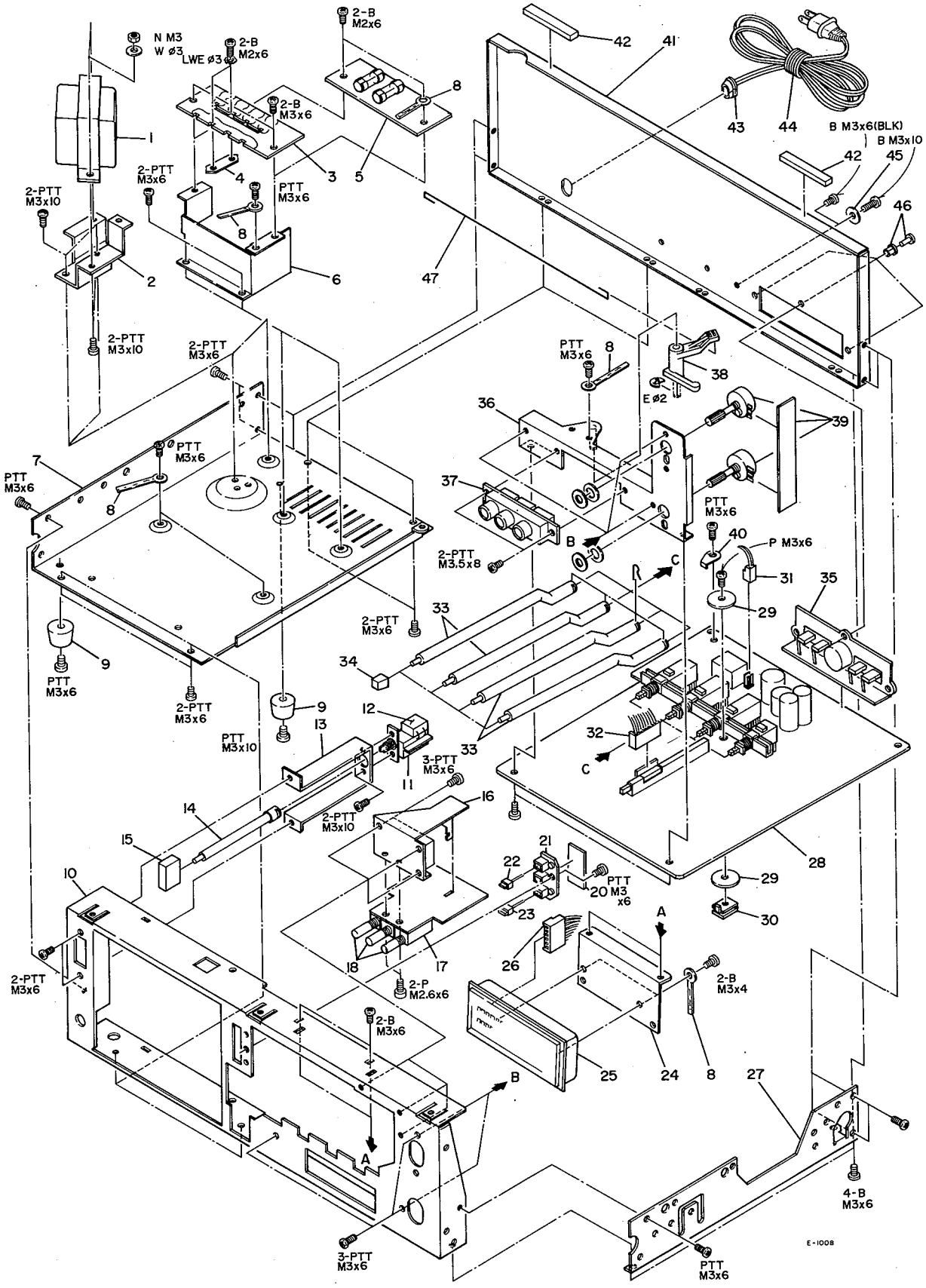
EXPLODED VIEW-3



Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	*5168989000	PCB Assy, SW	
	*5167989000	PCB, SW	Part of 3 - 1
	5131030000	Switch, Slide; 6PDT	Part of 3 - 1
3 - 2	*5555754000	Bracket, Switch	
3 - 3	*5555753000	Lever, Slide Switch	
3 - 4	*5504758000	Plate Assy, Thrust	
3 - 5	*5524251001	Spring, Thrust	
3 - 6	*5534744000	Screw, Thrust	
3 - 7	5504756000	Flywheel Assy, Capstan	
3 - 8	5534767000	Belt, Flywheel	
3 - 9	*5550031000	Washer, Thrust	
3 - 10	5504091000	Housing Assy, Capstan	
3 - 11	*5502239000	Chassis, Mechanism	
3 - 12	*5555755000	Bracket, Switch; B	
3 - 13	5135003000	Switch, Leaf	
3 - 14	*5504772000	Lever Assy, Pause; A	
3 - 15	*5555766000	Lever, Pause; B	
3 - 16	*5524244000	Spring, Pause	
3 - 17	*5524235000	Spring, Lever Return	
3 - 18	5534130000	Washer, Oil Retaining	
3 - 19	*5504770000	Lever Assy, FF	
3 - 20	*5555761000	Arm, Actuating	
3 - 21	*5524250000	Spring, Head Base Plate	
3 - 22	7105136000	Motor Assy, DC	
3 - 23	*5555751000	Bracket, Motor Assy	
3 - 24	*5504777000	Damper Assy	
3 - 25	5534768000	Belt, Relay	
3 - 26	*5555764000	Arm, Record Actuating	
3 - 27	*5524243000	Spring, Record	
3 - 28	5502240000	Gear Assy	
3 - 29	*5504771000	Lever Assy, Eject	
3 - 30	*5555763000	Lever, Record	
3 - 31	5533221000	Plate, Button Lock	
3 - 32	*5524248000	Spring, Lock Plate	
3 - 33	*5524293000	Lever, Lock Actuating	
3 - 34	*5504774000	Lever Assy, Stop	
3 - 35	*5524246000	Spring, Stop Lever	
3 - 36	5135005000	Switch, Leaf	JAPAN (f-210)

EXPLODED VIEW-4 (CX-270)

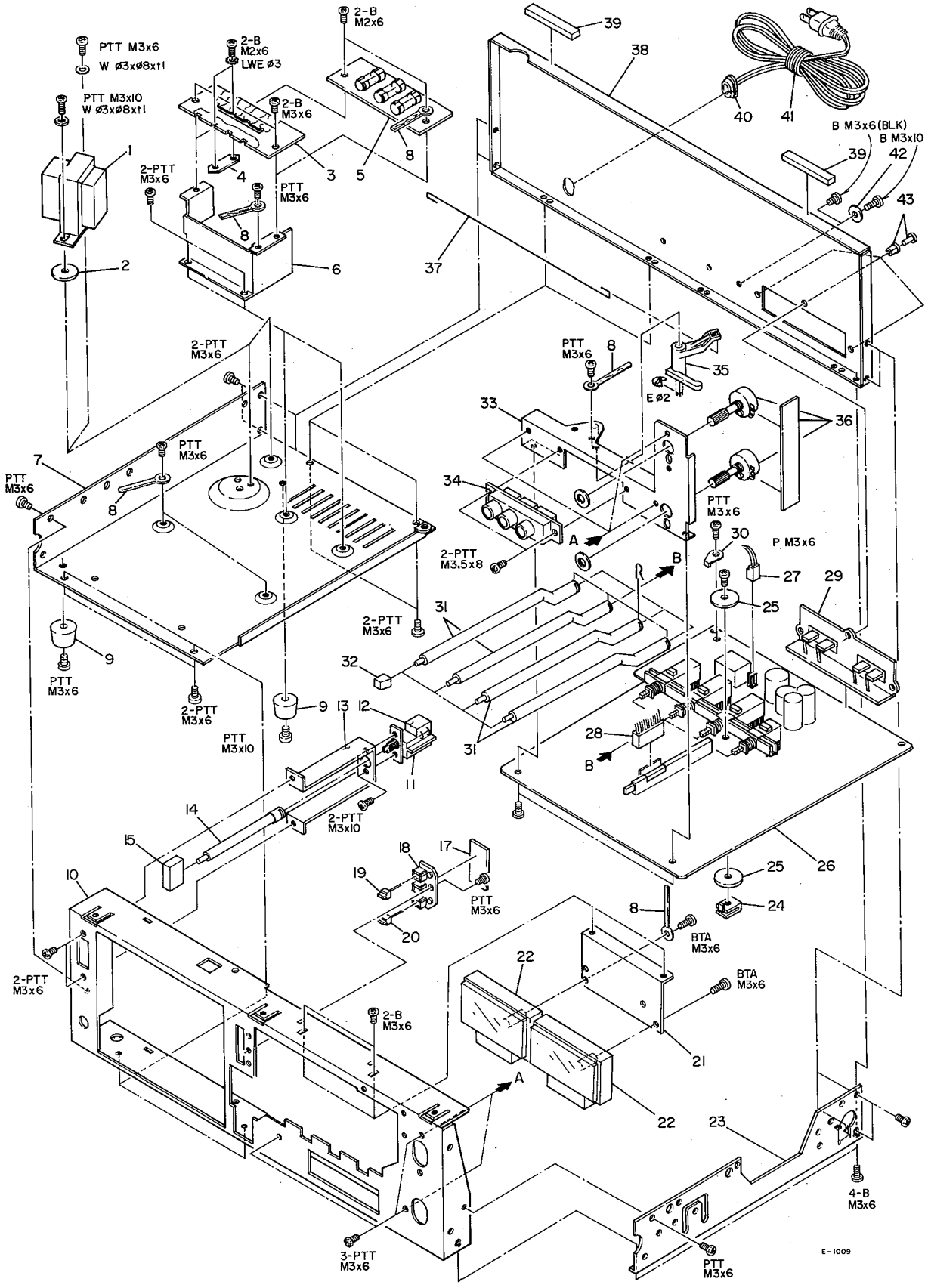


Parts marked with *require longer delivery time than regular parts.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	*9125007000	Transformer, Power	U.S.A., CANADA
	*9125008000	Transformer, Power	GENERAL EXPORT
	*9125009000	Transformer, Power	U.K., EUROPE, AUSTRALIA
4 - 2	*5555587100	Bracket, Transformer	
4 - 3	*5168548100	PCB Assy, VOLTAGE SELECTOR	GENERAL EXPORT
	*5167548100	PCB' VOLTAGE SELECTOR	GENERAL EXPORT
4 - 4	*5555062000	Plate, Select; A	GENERAL EXPORT
4 - 5	*5168882000	PCB Assy, FUSE	U.K., EUROPE
	*5167882000	PCB, FUSE	Part of 4 - 5
	*5142087000	Holder, Fuse	Part of 4 - 5
	5142088000	Fuse, 250 mAT	U.K., EUROPE
	5041138000	Fuse, 500 mAT	U.K., EUROPE
4 - 6	*5555595000	Bracket, PCB	GENERAL EXPORT, U.K., EUROPE
4 - 7	*5552434000	Chassis, Bottom	
4 - 8	*5581038000	Clamper, Cord; A	
4 - 9	*5534432000	Foot	
4 - 10	*5551041000	Chassis, Front	
4 - 11	*5134018000	Switch, Power	U.S. A., CANADA, AUSTRALIA
	*5134044000	Switch, Power	EUROPE, U.K.
	*5134009000	Switch, Power	GENERAL EXPORT
4 - 12	*5052910000	Spark Killer, 0.033 mfd + 120 ohm 125V AC	U.S.A.
	*5052911000	Spark Killer, 0.033 mfd + 120 ohm 250V AC	CANADA
	*5189001000	Spark Killer, 0.047 mfd	U.K., EUROPE
	*5052907000	Spark Killer, 0.01 mfd + 300 ohm 400V AC	GENERAL EXPORT, AUSTRALIA
4 - 13	*5555061100	Bracket, Power Switch	
4 - 14	5534422100	Rod, Power Switch	
4 - 15	5534774000	Button, Power Switch	
4 - 16	*5555778000	Angle, Switch Mounting	
4 - 17	*5158084000	PCB Assy, METER	
	5145049000	Switch, Push	Part of 4 - 17
4 - 18	5504681000	Knob Assy, Push Switch	
4 - 19		(Not used)	
4 - 20	*5167987000	PCB, LED	
4 - 21	*5534771000	Bracket, LED	
4 - 22	*5143140000	LED (Red)	
4 - 23	*5143139000	LED (Green)	
4 - 24	*5555779000	Bracket, Meter	
4 - 25	5040098100	Peak Level Meter, FL	
4 - 26	*5122172000	Connector, Socket; 10P	
4 - 27	*5553325000	Chassis, Right Side	
4 - 28	*5168996000	PCB Assy, REC/PLAY AMPL.	
	*5167986000	PCB, REC/PLAY AMPL.	Part of 4 - 28
4 - 29	*5580007000	Washer	
4 - 30	*5555059100	Bracket, PCB	
4 - 31	*5122164000	Connector, Socket; 2P	
4 - 32	*5122168000	Connector, Socket; 6P	
4 - 33	*5534773000	Rod, Push Switch; B	
4 - 34	5534775000	Button, B	
4 - 35	*5126037000	Terminal Assy, IN/OUTPUT(w/DIN)	EUROPE
	*5126038000	Terminal Assy, IN/OUTPUT	All except EUROPE
4 - 36	*5504779000	Bracket Assy, Record Lever	
4 - 37	*5124063000	Jack Assy, 3-gang	
4 - 38	*5534424000	Lever, Record	
4 - 39	*5168988000	PCB Assy, VOLUME	
	*5167988000	PCB, VOLUME	Part of 4 - 39
	5150247000	Var. Res., 100 k ohm - A	Part of 4 - 39
4 - 40	*5555590000	Plate, GND; A	Part of 4 - 28
4 - 41	*5552435000	Panel, Rear	
4 - 42	*5555570000	Cushion, Top Cover; B	
4 - 43	*5534661000	Strain Relief, AC Power Cord	U.K.
	*5534663000	Strain Relief, AC Power Cord	AUSTRALIA
	*5534660000	Strain Relief, AC Power Cord	All except U.K., AUSTRALIA

(Continued on page 26)

EXPLODED VIEW-5 (CX-210, f-210)



Parts marked with *require longer delivery time than regular parts.

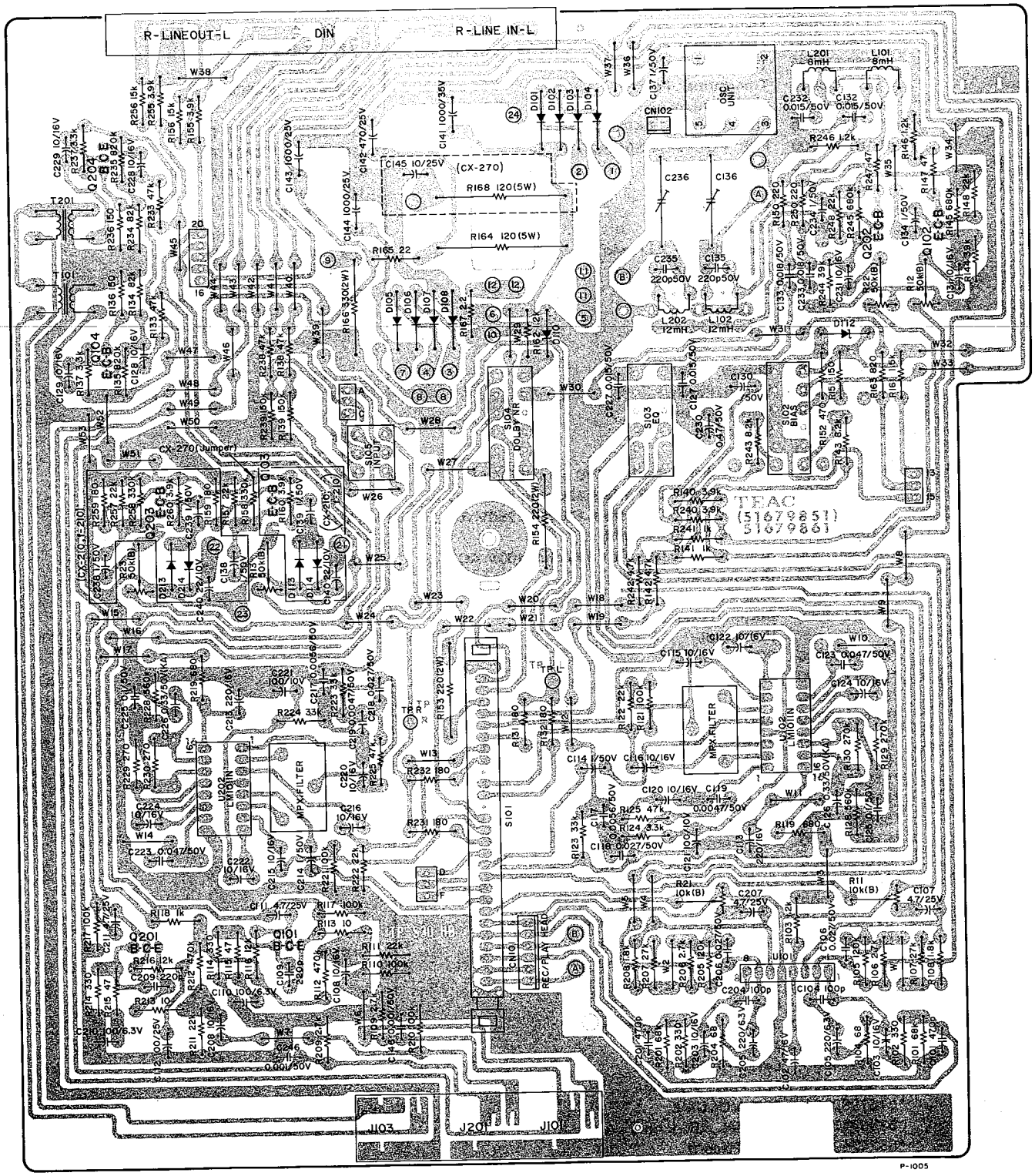
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
5 - 1	9125000000	Transformer, Power	JAPAN (f-210)
	9125001000	Transformer, Power	U.S.A.
	9125002000	Transformer, Power	CANADA
	9125003000	Transformer, Power	U.K., EUROPE
	9125004000	Transformer, Power	AUSTRALIA
	9125005000	Transformer, Power	GENERAL EXPORT
5 - 2	*5580004000	Washer, Aluminium	
5 - 3	*5168548100	PCB Assy, VOLTAGE SELECTOR	GENERAL EXPORT
	*5167548100	PCB, VOLTAGE SELECTOR	GENERAL EXPORT
5 - 4	*5555062000	Plate, Select; A	GENERAL EXPORT
5 - 5	*5168546100	PCB Assy, FUSE	U.K., EUROPE
	*5167546100	PCB, FUSE	Part of 5 - 5
	*5142087000	Holder, Fuse	Part of 5 - 5
	5142088000	Fuse, 250 mAT (2 used)	U.K., EUROPE
	5142185000	Fuse, 800 mAT	U.K., EUROPE
5 - 6	*5555595000	Bracket, PCB	GENERAL EXPORT, U.K., EUROPE
5 - 7	*5552434000	Chassis, Bottom	
5 - 8	*5581038000	Clamper, Cord; A	
5 - 9	*5534432000	Foot	
5 - 10	*5551041000	Chassis, Front	
5 - 11	*5134018000	Switch, Power	U.S.A., CANADA, AUSTRALIA
	*5134044000	Switch, Power	U.K., EUROPE
	*5134120000	Switch, Power	JAPAN (f-210)
	*5134009000	Switch, Power	GENERAL EXPORT
5 - 12	*5052905000	Spark Killer, 0.1 mfd + 120 ohm 400V AC	JAPAN (f-210)
	*5052910000	Spark Killer, 0.033 mfd + 120 ohm 125V AC	U.S.A.
	*5052911000	Spark Killer, 0.033 mfd + 120 ohm 250V AC	CANADA
	*5189001000	Spark Killer, 0.047 mfd	U.K., EUROPE
	*5052907000	Spark Killer, 0.01 mfd + 300 ohm 400V AC	GENERAL EXPORT, AUSTRALIA
5 - 13	*5555061100	Bracket, Power Switch	
5 - 14	5534422100	Rod, Power Switch	
5 - 15	5534774000	Button, Power Switch	
5 - 16		(Not used)	
5 - 17	*5167987000	PCB, LED	
5 - 18	*5534771000	Bracket, LED	
5 - 19	*5143140000	LED, (Red)	
5 - 20	*5143139000	LED, (Green)	
5 - 21	*5555779000	Bracket, Meter	
5 - 22	9169000000	Meter, VU	
5 - 23	*5553325000	Chassis, Right Side	
5 - 24	*5555059100	Bracket, PCB	
5 - 25	*5580007000	Washer	
5 - 26	*5168986000	PCB Assy, REC/PLAY AMPL.	
	*5167986000	PCB, REC/PLAY AMPL.	Part of 5 - 26
5 - 27	*5122164000	Connector, Socket; 2P	
5 - 28	*5122168000	Connector, Socket; 6P	
5 - 29	*5126037000	Terminal Assy, IN/OUTPUT (w/DIN)	EUROPE
	*5126038000	Terminal Assy, IN/OUTPUT	All except EUROPE
5 - 30	*5555590000	Plate, GND, A	Part of 5 - 26
5 - 31	*5534773000	Rod, Push Switch; B	
5 - 32	5534775000	Button, B	
5 - 33	*5504779000	Bracket Assy, Record Lever	
5 - 34	*5124063000	Jack Assy, 3-gang	
5 - 35	*5534424000	Lever, Record	
5 - 36	*5168988000	PCB Assy, VOLUME	
	*5167988000	PCB, VOLUME	Part of 5 - 36
	5150247000	Var. Res., 100 k ohm - A	Part of 5 - 36
5 - 37	*5524249000	Link, Record	
5 - 38	*5552435000	Panel, Rear	
5 - 39	*5555570000	Cushion, Top Cover	

(Continued on page 26)

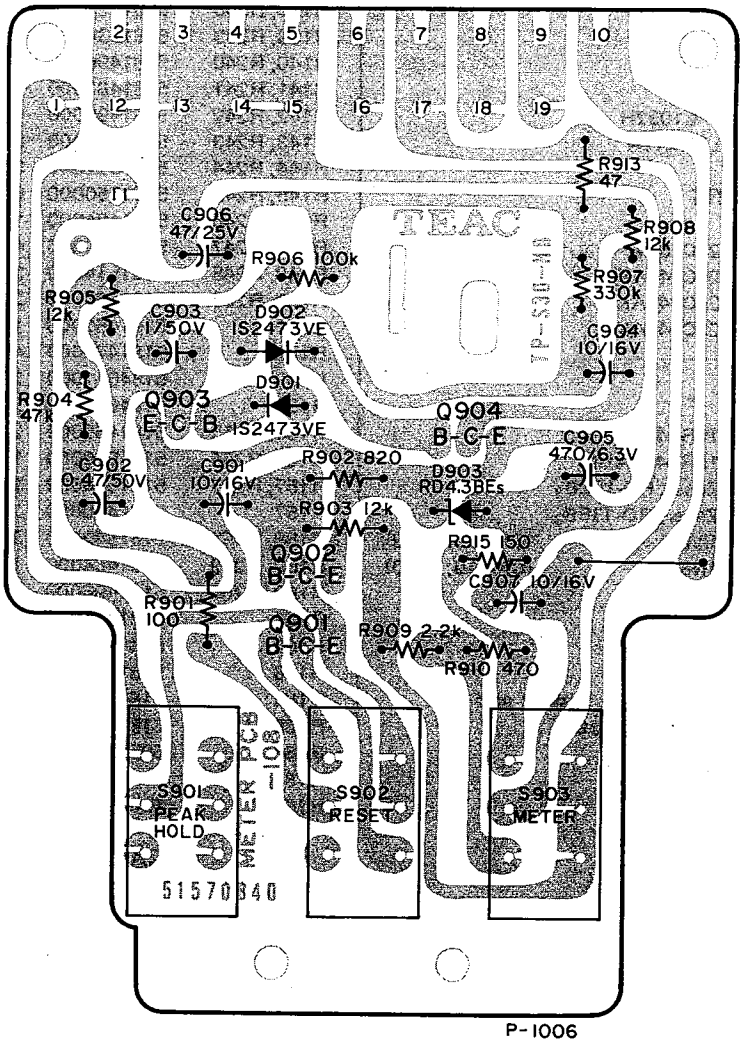
10 PC BOARDS AND PARTS LIST

PC Boards shown viewed from foil side.

REC/PLAY AMPL PCB ASSY



METER PCB ASSY (CX-270)



REC/PLAY AMPL PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION	
	5168986000	PCB Assy	(CX-210,f-210)
	5168996000	PCB Assy	(CX-270)
	5167986000	PCB	
		IC's	
U101	5147061000	μPC1032H	
U102, U202	5147077000	LM1011N	
		TRANSISTORS	
Q101, Q201	5145119000	2SC1844F	
Q102, Q202	5145091000	2SC945AK	
Q103, Q203	5145091000	2SC945AK	(CX-210, f-210)
Q104, Q204	5145091000	2SC945AK	
		DIODES	
D101 ~D104	5143113000	1SR34-200HM	
D105 ~D108	5143113000	1SR34-200HM	
D110	5143108000	Zener, RD-13EB$_3$	
D112	5143108000	Zener, RD-13EB$_3$	
D113, D213	5042213000	1N60	(CX-210, f-210)
D114, D214	5142213000	1N60	(CX-210, f-210)

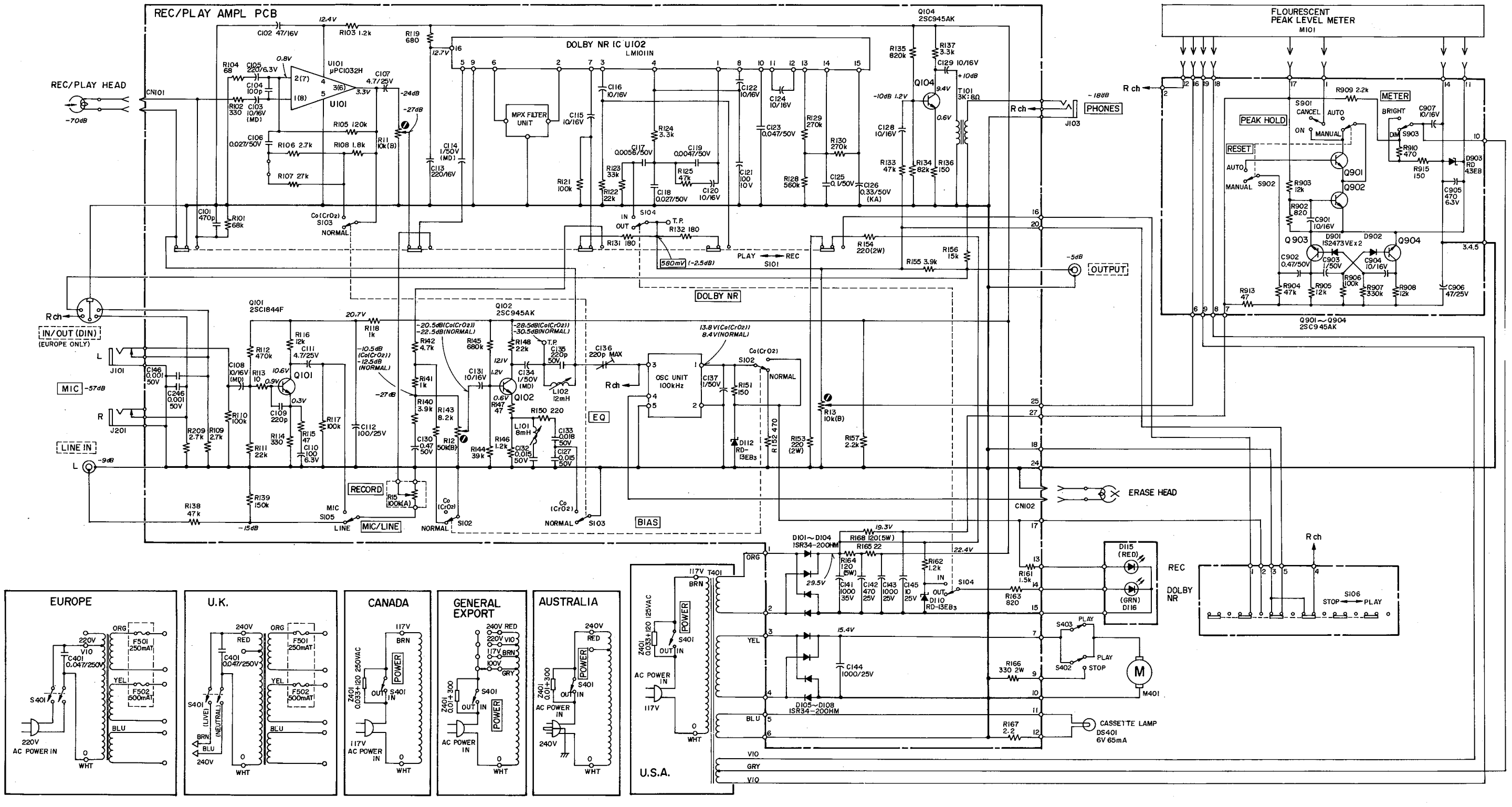
RESISTORS

All resistors are rated ±5% tolerance, ¼ watt and of carbon type unless otherwise noted.

R101, R201	5181526000	68 k ohm		
R102, R202	5181470000	330 ohm		
R103	5181484000	1.2 k ohm		
R104, R204	5181454000	68 ohm		
R105, R205	5181532000	120 k ohm		
R106, R206	5181492000	2.7 k ohm		
R107, R207	5181516000	27 k ohm		
R108, R208	5181488000	1.8 k ohm		
R109, R209	5181492000	2.7 k ohm		
R110, R210	5181530000	100 k ohm		
R111, R211	5181514000	22 k ohm		
R112, R212	5181546000	470 k ohm		
R113, R213	5181434000	10 ohm		
R114, R214	5181470000	330 ohm		
R115, R215	5181450000	47 ohm		
R116, R216	5181508000	12 k ohm		
R117, R217	5181530000	100 k ohm		
R118	5181482000	1 k ohm		
R119, R219	5181478000	680 ohm		
R121, R221	5181530000	100 k ohm		
R122, R222	5181514000	22 k ohm		
R123, R223	5181518000	33 k ohm		
R124, R224	5181494000	3.3 k ohm		
R125, R225	5181522000	47 k ohm		
R128, R228	5181548000	560 k ohm		
R129, R229	5181540000	270 k ohm		
R130, R230	5181540000	270 k ohm		
R131, R231	5181464000	180 ohm		
R132, R232	5181464000	180 ohm		
R133, R233	5181522000	47 k ohm		
R134, R234	5181528000	82 k ohm		
R135, R235	5181552000	820 k ohm		
R136, R236	5181462000	150 ohm		
R137, R237	5181494000	3.3 k ohm		
R138, R238	5181522000	47 k ohm		
R139, R239	5181534000	150 k ohm		
R140, R240	5181496000	3.9 k ohm		
R141, R241	5181482000	1 k ohm		
R142, R242	5181498000	4.7 k ohm		
R143, R243	5181504000	8.2 k ohm		
R144, R244	5181522000	39 k ohm		
R145, R245	5181550000	680 k ohm		
R146, R246	5181484000	1.2 k ohm		
R147, R247	5181450000	47 ohm		
R148, R248	5181514000	22 k ohm		
R150, R250	5181466000	220 ohm		
R151	5181462000	150 ohm		
R152	5181474000	470 ohm		
R153	5184611000	220 ohm	2W	Metal Film
R154	5184611000	220 ohm	2W	Metal Film
R155, R255	5181469000	3.9 k ohm		
R156, R256	5181510000	15 k ohm		
R157, R257	5181514000	22 k ohm		(CX-210, f-210)
R157	5181490000	2.2 k ohm		(CX-270)
R158, R258	5181542000	330 k ohm		(CX-210, f-210)
R159, R259	5181464000	180 ohm		(CX-210, f-210)
R160, R260	5181496000	3.9 k ohm		(CX-210, f-210)
R161	5181486000	1.5 k ohm		
R162	5181484000	1.2 k ohm		
R163	5181480000	820 ohm		
R164	5184429000	120 ohm	5W	Cement
R165	5181442000	22 ohm		
R166	5052713000	330 ohm	2W	Metal Film
R167	5184209000	2.2 ohm		Non Flammable
R168	5184429000	120 ohm	5W	Cement (CX-270)

CAPACITORS

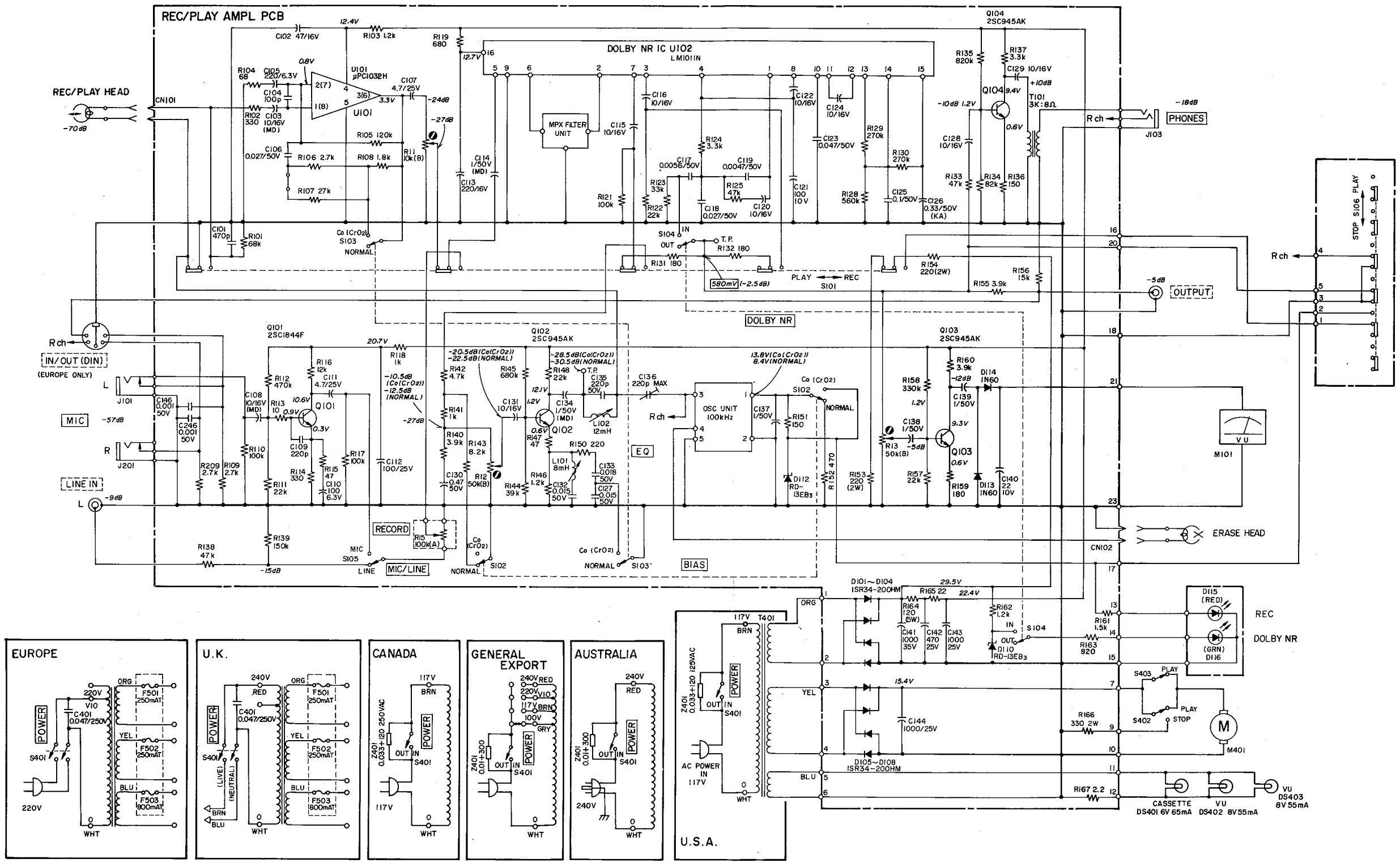
C101, C201	5172220000	Ceramic	470 pfd	50V	10%
C102	5171348000	Elec.	47 mfd	16V	
C103, C203	5173672800	Elec.	10 mfd	16V	(MD)
C104, C204	5172212000	Ceramic	100 pfd	50V	10%
C105, C205	5171985800	Elec.	220 mfd	6.3V	
C106, C206	5171866000	Mylar	0.027 mfd	50V	5%
C107, C207	5171304000	Elec.	4.7 mfd	25V	
C108, C208	5173672800	Elec.	10 mfd	16V	(MD)
C109, C209	5172216000	Ceramic	220 pfd	50V	10%
C110, C210	5171354000	Elec.	100 mfd	6.3V	
C111, C211	5171304000	Elec.	4.7 mfd	25V	
C112	5171979800	Elec.	100 mfd	25V	
C113, C213	5171987800	Elec.	220 mfd	16V	
C114, C214	5173642800	Elec.	1 mfd	50V	(MD)
C115, C215	5171314000	Elec.	10 mfd	16V	
C116, C216	5171314000	Elec.	10 mfd	16V	
C117, C217	5170370000	Mylar	0.0056 mfd	50V	5%
C118, C218	5171866000	Mylar	0.027 mfd	50V	5%
C119, C219	5170368000	Mylar	0.0047 mfd	50V	5%
C120, C220	5171314000	Elec.	10 mfd	16V	
C121, C221	5171356000	Elec.	100 mfd	10V	
C122, C222	5171314000	Elec.	10 mfd	16V	
C123, C223	5171872000	Mylar	0.047 mfd	50V	5%
C124, C224	5171314000	Elec.	10 mfd	16V	
C125, C225	5171902000	Mylar	0.1 mfd	50V	10%



U101	μPC1032H	Q901～Q904	2SC945AK
U102, U202	LM1011N	D901, D902	1S2473VE
Q101, Q201	2SC1844F	D903	RD-4.3EB
Q102, Q202	2SC945AK		
Q104, Q204	2SC945AK		
D101～D108	1SR34-200HM		
D110, D112	RD-13EB3		

NOTES.

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k = 1,000 OHMS, M = 1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p = PICOFARADS).
3. SCHEMATIC DIAGRAM SHOWN FOR LEFT CHANNEL EXCEPT FOR SOME OF THE COMPONENTS.
4. DC VOLTAGES WERE MEASURED DURING RECORD PAUSE MODE UNLESS OTHERWISE NOTED.



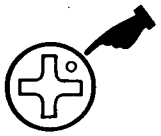
U101	μPC1032H	D101~D108	1SR34-200HM
U102, U202	LM1011N	D110, D112	RD-13EB$_3$
Q101, Q201	2SC1844F	D113, D213	1N60
Q102, Q202	2SC945AK	D114, D214	1N60
Q103, Q203	2SC945AK		
Q104, Q204	2SC945AK		

NOTES.

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k = 1,000 OHMS, M = 1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p = PICOFARADS).
3. SCHEMATIC DIAGRAM SHOWN FOR LEFT CHANNEL EXCEPT FOR SOME OF THE COMPONENTS.
4. DC VOLTAGES WERE MEASURED DURING RECORD PAUSE MODE UNLESS OTHERWISE NOTED.

ASSEMBLING HARDWARE CODING LIST

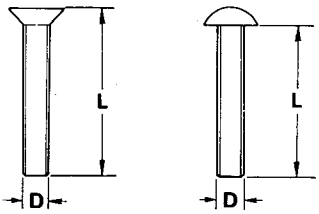
All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted. ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:

B M 3 x 6

- Length in mm (L)
- Diameter in mm (D) *
- Metric System
- Nomenclature



* Inner dia. for washers and nuts

	Code	Name	Type
MACHINE SCREW	**R**	Round Head Screw	
	P	Pan Head Screw	
	T	Stove Head Screw (Truss)	
	B	Binding Head Screw	
	F	Flat Countersunk Head Screw	
	O	Oval Countersunk Head Screw	
WOOD SCREW	**RW**	Round Head Wood Screw	
TAPTITE SCREW	**PTT**	Pan Head Taptite Screw	
	WTT	Washer Head Taptite Screw	
SEMS SCREW	**BSA**	Binding Head SEMS Screw(A Type)	
	BSB	Binding Head SEMS Screw(B Type)	
	BSF	Binding Head SEMS Screw(F Type)	
	PSA	Pan Head SEMS Screw(A Type)	
	PSB	Pan Head SEMS Screw(B Type)	

	Code	Name	Type
TAPPING SCREW	**BTA**	Binding Head Tapping Screw(A Type)	
	BTB	Binding Head Tapping Screw(B Type)	
	RTA	Round Head Tapping Screw(A Type)	
	RTB	Round Head Tapping Screw(B Type)	
SETSCREW	**SF**	Hex Socket Setscrew(Flat Point)	
	SC	Hex Socket Setscrew(Cup Point)	
	SS	Slotted Socket Setscrew(Flat Point)	
WASHER	**E**	E-Ring (Retaining Washer)	
	W	Flat Washer (Plain)	
	SW	Lock Washer (Spring)	
	LWI	Lock Washer (Internal Teeth)	
	LWE	Lock Washer (External Teeth)	
	TW	Trim Washer (Countersunk)	
NUT	**N**	Hex Nut	

CX-270/CX-210

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PRINTED IN JAPAN 0679 AT 2.0 D-3159A